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A PROFILE OF WMD PROLIFERANTS:
ARE THERE COMMONALITIES?

by

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Preface

I conducted this research because I have a great interest in how our defensive posture will be shaped in the future by the potential emergence of weapons of mass destruction (WMD). I believe those who are the most knowledgeable about WMD hold the key to solving our country's defense issues. Those involved in WMD proliferation need to be studied. Study of the proliferant organizations is important, but I believe study of the individual proliferants is even more important. This research encompasses the background of three well-known WMD proliferants. If commonalities exist in proliferant backgrounds, potential proliferants might be recognized early on and their chosen profession altered.

I wish to express my gratitude to Dr. Hank Dasinger for his assistance and encouragement in writing this paper.

Abstract

The Joint Chiefs of Staff have commissioned a study through the Defense Intelligence Agency (DIA) to investigate both the background and personality characteristics of those individuals who proliferate weapons of mass destruction. The DIA is hopeful that some particular background traits will stand out and allow them advanced warning that the potential for proliferation exists in a suspect. This study will be limited to three individuals: Dr. Abdul Qadeer Khan who specializes in the proliferation of nuclear weapons, General Anatoly Kuntsevich who specializes in the proliferation of chemical weapons, and Dr. Rihab Taha who specializes in the proliferation of biological weapons. The study will provide extensive information regarding the history, education, political affiliation, and writings of each individual. The hypothesis of “Weapons of mass destruction proliferants have common background traits” will be tested via a traditional research methodology. The personality characteristics of these individuals will be analyzed in another study.

Chapter 1

Introduction

The proliferation of weapons of mass destruction and the ballistic missiles that deliver them pose a major threat and must remain a major focus of U.S. defense policy and budget allocations.

—William S. Cohen, Secretary of Defense

On 12 November 1997, President Clinton expanded his 1994 Executive Order finding “...that the proliferation of nuclear, biological, and chemical weapons (weapons of mass destruction) and of the means to deliver such weapons, constitutes an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States ...[and] declared a national emergency to deal with that threat.”¹ Then on 14 November 1997, the President called for action “...in the face of what I consider to be one of three or four most significant security threats that all of our people will face in the next whole generation, this weapons of mass destruction proliferation. We’ve got to stop it.”²

The proliferation of nuclear, biological, and chemical (NBC) weapons is obviously a great concern for our President, Congress and therefore, our military. The proliferation of nuclear, biological, and chemical weapons is a particular concern for at least two reasons: 1) The large-scale and indiscriminate nature of their effects—particularly against unprotected civilians—differentiates mass destruction from conventional weapons and,

2) Unlike most categories of conventional weapons, which will likely be considered legitimate instruments of national self-defense for the foreseeable future, weapons of mass destruction engender widespread revulsion.³

Significance of the Problem

“These weapons pose a grave and urgent threat to international security.”⁴ A recently published Office of Technology Assessment document, *Proliferation of Weapons of Mass Destruction: Assessing the Risks*,⁵ had three major findings:

1. The states most actively working to develop weapons of mass destruction, although limited in number, are for the most part located in unstable parts of the world: the Middle East, South Asia, and the Korean Peninsula;
2. Weapons of mass destruction proliferation poses dangers to all nations;
3. The breakup of the Soviet Union presents immediate threats to the global non-proliferation regimes.

The proliferation of nuclear, biological, and chemical weapons and the ballistic missiles that carry them creates a dark cloud over the potential achievement of a stable global environment. It also raises the risks of escalation of regional conflicts. Proliferants understand the value of these weapons for deterrence, coercion, and war; but why do they do it? Is there something in their backgrounds that caused them to think in such high-level, destructive terms? This researcher set out to find the answers to these questions.

Limitations of the Study

A research paper of this nature is limited by the amount of personal information available about each proliferant. Because of the classified nature of some of the information (especially for General Kuntsevich), this paper may appear to contain blank areas. This paper uses information regarding the significance of the work each

proliferant is doing and how their work affects our national security. Information on each person's background will cover his or her current activities, history, education, political affiliations, and writings.

Proliferant Characteristics

Although difficult to categorize or “model” the backgrounds of proliferants, it will be attempted in this paper in order to help draw tangible conclusions about their backgrounds. A hypothesized set of common characteristics for purposes of this paper is that each proliferant was:

1. Born in a country with undeclared WMD capabilities
2. Educated by their enemies
3. Motivated by financial incentives
4. Raised in “have not” homes
5. A strong patriot

As much research as possible was conducted using the AU Library information network, books, and articles published about the proliferants. In order to verify the information obtained through this research, people who knew each individual were asked to review relevant sections and confirm the information presented. This human knowledgebase was provided by the Defense Intelligence Agency.⁶

Notes

¹ White House. 1994. Executive Order #12938

² Ibid.

³ Ibid.

⁴ Perry, William. 1997. Message of the Secretary of Defense.” *Proliferation: Threat and Response*. p. iii.

⁵ US Congress. Office of Technology Assessment. 1993. *Proliferation of Weapons of Mass Destruction: Assessing the Risks*.

⁶ Centner, Chris. Email to Major Brian Anderson. Dated Sep 98.

Chapter 2

Weapons of Mass Destruction

We should expect more countries and terrorists groups to seek and to use such weapons. Countering the proliferation threat will be a top security challenge of the 21st century.

— William S. Cohen, Secretary of Defense

Many of the technologies and materials used for WMD production are also used for legitimate non-weapons purposes. Such dual-use technologies are increasingly available on the open market and, where they cannot be openly bought or bartered, appear to be increasingly available through illicit channels.¹ This is where proliferation becomes a fiscal matter versus a political opportunity. The ease in which WMD technology is now becoming available is causing a new global black market to form.

Description of the Weapons

Nuclear, biological, and chemical weapons are commonly lumped together under the terms “weapons of mass destruction,” yet their effects, relative lethalties, and military applications are very different.

Nuclear Weapons

Nuclear weapons, which can be more than a million times more powerful than the same weight of conventional explosives, create shock waves, high pressures, flying

debris, and extreme heat—the same mechanisms by which conventional explosives injure and kill, albeit on a vastly increased scale. Unlike conventional explosives, however, nuclear blasts also create neutron and gamma radiation, which can kill or harm those exposed at the instant of detonation. In addition, they generate long-term radioactivity in the form of fallout, which can spread over an area much greater than that affected by the bomb's immediate effects. In addition to producing acute illness or death at considerable distances from the destination, fallout can also lead to delayed medical problems such as cancer or genetic abnormalities which are seen as distasteful by military planners.²

Chemical Weapons

Chemical agents are poisons that incapacitate, injure, or kill through toxic effects on the skin, eyes, lungs, nerves, or other organs. Some chemical warfare agents can be lethal when vaporized and inhaled in amounts as small as a few milligrams.³

The consequences of chemical warfare have unfortunately been recorded in recent history. “Before the Gulf War, Iraq had the most advanced and diverse chemical warfare program in the Arab world.”⁴ The television images of dead Kurdish villagers and incapacitated Iranian soldiers during the Iran-Iraq War revealed the grisly and inhuman effects of chemical weaponry. The psychological impact of Iraq's Scud missile attacks on Israel and Saudi Arabia was enormous.⁵

Biological Weapons

As potent as chemical agents are, however, biological agents—disease-causing microorganisms such as bacteria, rickettsia, and viruses—can be many times deadlier, pound for pound.⁶ Toxins, defined as toxic substances made by biological organisms,⁷ or

their synthetically produced versions, are banned by both the Biological and the Chemical Weapons Conventions.⁸ Laboratory tests on animals indicated that, if effectively disseminated and inhaled, 10 grams of anthrax spores (a form of disease-inducing bacteria) could produce as many casualties as one ton (1 million grams) of nerve agent. Ten grams of anthrax spores could kill as many people as one ton of the nerve agent sarin. The relative coverage of 1,000 kilograms of nerve agent sarin is 7 to 8 square kilometers under ideal meteorological conditions (at night, with favorable, mild to moderate winds). Attacking a major metropolitan city like Washington, DC with sarin would result in an estimated 3,000 to 8,000 deaths. A similar attack using 100 kilograms of anthrax under the same conditions would cover 300 square kilometers and result in one to three million deaths. Anthrax, under favorable meteorological conditions, could kill as many people as a comparably sized nuclear device.⁹

Many technical barriers which once limited the effective use of biological warfare (BW) are gone. Now however, a country or group with modest pharmaceutical expertise can develop BW for terrorist or military use. As the United States prepares itself for the national security challenges of the 21st century, it must grasp the implications of this silent revolution.

Biological warfare offers an adversary unique and significant advantages because of its ease of production, potential impact of use, and the ability to exploit US vulnerabilities. It is the only weapon of mass destruction which has utility across the spectrum of conflict. Using biological weapons under the cover of an endemic or natural disease occurrence provides an attacker the potential for plausible denial. In this context,

one can see how biological weapons offer greater possibilities for use than do nuclear weapons.

WMD Summary

Desert Storm solidified the perception in the United States, in Congress, and among our military leadership that weapons of mass destruction were something that third world nations considered a potential equalizer. Developing and producing biological and chemical weapons is much simpler and cheaper than developing nuclear weapons. Biotechnology allows small facilities to be capable of producing large amounts of biological agents. Ten million dollars allows a proliferant to produce a large arsenal. The scientific and technological knowledge needed to develop and produce offensive agents in significant quantities is readily available and relatively unsophisticated. The equipment required to produce biological and chemical weapons is widely available and has dual-use with military and legitimate commercial applications. Finally, and probably most importantly, the use of biological weapons could be difficult to prove in some cases because of outbreaks of endemic or naturally occurring diseases.¹⁰

Notes

1 Johnson, Stuart E. and Lewis, William H. 1995. *Weapons of Mass Destruction: New Perspectives on Counterproliferation*. p. 11.

2 Paret, Peter. *Makers of Modern Strategy*, 1986, Princeton University Press. p. 737.

3 US Congress. Office of Technology Assessment. 1993. *Proliferation of Weapons of Mass Destruction: Assessing the Risks*.

⁴ Eisenstadt, Michael. 1993. "Like a Phoenix From the Ashes? The Future of Iraqi Military Power." *The Washington Institute Policy Papers*.

⁵ Johnson, Stuart E. and Lewis, William H. 1995. *Weapons of Mass Destruction: New Perspectives on Counterproliferation*.

⁶ Eisenstadt, Michael. 1993. "Like a Phoenix From the Ashes? The Future of Iraqi Military Power." *The Washington Institute Policy Papers*.

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⁷ Ibid.

⁸ US Congress. Office of Technology Assessment. 1993. *Proliferation of Weapons of Mass Destruction: Assessing the Risks*.

⁹ Kadlec, Robert. 1997. "Backgrounder: Twenty-First Century Germ Warfare." *Middle East Digest*.

¹⁰ Ibid.

Chapter 3

The Proliferants

The threat from nuclear, biological and chemical weapons is global. This proliferation worries all nations who were devoted to peace and the security of their people.

—William S. Cohen, Secretary of Defense¹

A Proliferant's Profile

This chapter discusses in detail three proliferants of nuclear, biological, and chemical weapons. It provides an overview of each one's background followed by a discussion of some of their current activities and how those activities are a threat to US national security. It also provides information regarding the WMD development status of each proliferant's country.

Dr. Abdul Qadeer Khan

Pakistan has been very aggressive in seeking out equipment, material, and technology for its nuclear weapons program. Pakistan uses China as its principle warhead materials supplier and has also sought a wide variety of nuclear related goods from many Western nations, including the United States. China has also been a supplier to Pakistan's ballistic missile program, providing technology and advisory assistance.

Pakistan has made strong efforts to acquire an indigenous capability in missile production technologies.²

Dr. Abdul Qadeer Khan is well known as the architect of Pakistan's nuclear program. He is considered a colorful, impressive figure but viewed in the west as a scientific rogue. He is also very outspoken, critical of western values and a man who conducts himself as though on a mission.³



Figure 1. Dr. Abdul Qadeer Khan

Dr. Khan claims he is not as he seems, telling the press that he is “one of the most gentle people in Pakistan... I feed birds and ants.”⁴ His words have been recorded and reported on for 20 years and he has never wavered. His statements are typical. He likes to brandish the sword: “The armed forces are not under pressure any more; they believe they are at equal footing with the enemy.”⁵ Then, in almost the same breath, he equates the success of Pakistan's billion-dollar bomb with its more pressing concerns: “Now we can concentrate on our education, economic and social problems.”⁶

Khan is a metallurgist by training, but it took a great deal more than a doctorate in metallurgy to provide Pakistan with the atomic bomb. It took a sound knowledge of atomic physics, engineering, and management. It took a degree of patriotism. It also took monumental self-absorption and egotism. Khan's efforts and dedication to make Pakistan a nuclear power was a result of his seeing the fall of East Pakistan back in 1971. Pakistan was trapped in a political crisis and India was involved in arming the rebellions in East Pakistan to fight against the Pakistani troops.⁷

Dr. Khan was born in the State of Bhopal of British India in 1936. He came from a family of patriots. His father was a teacher; his grandfather and great-grandfather were military officers. Dr. Khan's Muslim family had been forced to flee India to Pakistan during the partition of British India. As a result, he often remarks, "everybody knocks those who do not have a country of their own" and he adds, "We have to safeguard this country of the pure more than our own lives."⁸

Dr. Khan migrated to Pakistan in 1952 and graduated from the University of Karachi before moving to Europe. While in Europe, Dr. Khan first studied at the famous Technische Universitact at Chalotenberg, West Berlin. Subsequently, he moved to the Technological University of Delft in Holland to obtain a Master's Degree. Finally he went on to the University of Leuven in Belgium where he earned a Doctorate in Physical Metallurgy.⁹

That year, he went to work for the Physical Dynamics Research Laboratory (PDRL) in Amsterdam. The PDRL was a subsidiary of a Dutch firm, Verenigde Machine-Fabrieken, which in turn worked closely with one of western Europe's most important nuclear facilities: URENCO (Uranium Enrichment Company). Because they were

unwilling to rely on the United States for nuclear fuel for their power reactors, Great Britain, Germany and the Netherlands had created URENCO in 1970 to guarantee their own supply of enriched uranium—the same fuel used in the Hiroshima bomb.¹⁰ An enrichment plant was located in Lamella, Holland and used highly classified ultracentrifuge technology to separate scarce highly fissionable U-235 from abundant U-238 by spinning the two isotopes at up to 100,000 revolutions per minute. The Physical Dynamics Research Laboratory (PDRL) was the URENCO subcontractor and consultant. This is how Dr. Khan obtained his ultracentrifuge expertise.

After returning to Pakistan in 1976 Dr. Khan soon rose to head a nascent nuclear Pakistani program and formed its new headquarters at Kahuta, south of Islamabad. He directed a new effort, obtaining critical technology and equipment to complement what he had learned in the Netherlands.

In more than 20 letters written to the network of Pakistani officials who delivered centrifuge parts from Canada during the late 1970s, Khan laid out the successes of his team. He described the travels of key operatives, the role of such companies as Siemens, Union Carbide, and others in the building of Kahuta.¹¹

The following months and years saw more of the same. Responding to a leaked Central Intelligence Agency charge that Pakistan would be able to explode an atomic bomb within a few years, former Pakistani President Zia ul-Haq assured the world that his country had absolutely no intention of acquiring an atomic arsenal (given that the country faced no nuclear threats compared to today). Dr. Khan, however, was not so discreet. In November 1990, he said simply that Pakistan could enrich uranium and

produce an atomic bomb if necessary. Dr. Khan by then had become a national hero: a scientist-manager on a par with Israel's Yuval Neeman, both western-educated.¹²

He was rewarded for his patriotism by being made the head of a research institute that was named after him: the Abdul Qadeer Khan Research Laboratories at Kahuta. Most of the research work done at Kahuta was attributed to the result of Dr. Khan's innovation and struggle.¹³

On one occasion, after receiving a gold medal from the Pakistani Institute of National Affairs, Khan boasted that Kahuta had put Pakistan on the world nuclear map.¹⁴ He added that his long stay in Europe and intimate knowledge of various countries and their manufacturing firms was an asset. That was truly an understatement.

Western countries had never imagined that a poor and backward country like Pakistan would finish their monopoly (an uranium monopoly) in such a short time. Dr. Khan told a Rawalpindi journalist in February 1984 that as soon as the US realized that Pakistan had dashed their dreams of containing nuclear capabilities, the US pounced on Pakistan like a hungry jackal and began attacking the country with all kinds of accusations.¹⁵ There seemed to be a perceived intolerance by the west for a Muslim country becoming their equal in this field.¹⁶

Dr. Khan has great academic interests. He is becoming more deeply involved with a new Pakistani university, the Ghulam Ishaq Khan Institute of Engineering Sciences and Technology. He is both an interim dean, establishing the academic staff, and the project director, making sure sufficient buildings are complete for the students.

Khan lives in a spacious single-story house in Islamabad near the huge Faisal mosque. Uniquely, his house has a swimming pool, despite what one would call a local

council ban on pools. He also rents the house next door to accommodate visitors. His wife, Henny (born in South Africa but originally of Dutch origin) loves animals. Their home has several cats and dogs, five turtles, and peacocks. Henny Khan cooks meat daily to feed local strays and occasionally takes them into her house if they are injured. Khan ends up paying the veterinarian's bills (soft heart for a guy who proliferates nuclear technology).

Security around Khan is tight. On the road, four-wheel drive security vehicles escort his car with klaxons blaring and lights flashing. The road outside his house is a public thoroughfare, but there are safety bumps in the road surface to slow traffic, and a permanent security post is opposite the house.

Khan's workers are well rewarded. Khan Research Laboratory employees receive over 80 percent more compensation than other government employees of equivalent rank, including technical qualification allowances, technical work allowances, and a 15 percent bonus for KRL's "special project" status. His staff enjoys better transport, medical, and working conditions than the staff of the Pakistan Atomic Energy Commission, a rival for talent.¹⁷ Perhaps only employees of foreign engineering joint ventures receive a better package of benefits.

Dr. Khan is still obsessed with patriotic feelings. He attributes these feelings to a classic manifestation of the bias and discrimination that is being held by the advanced world against the developing countries. Khan has always encouraged Pakistan's scientists, technologists and engineers to come forward and play their dutiful role in his crusade of national pride.¹⁸ When asked if he had any political ambitions, he responded: "No, never, and this has been agreed upon with my wife, that I will not go into politics

because she says that politics is a dirty game and you end up telling lies and making false promises. I would love to be associated in some way with science and technology. If after retirement they want to keep me involved in some advisory capacity, I would love to do that.”¹⁹

Dr. Khan has authored many articles in his country but few are published in the western press. The reason for that is probably because of his anti-western sentiment, which comes through loud and clear in his writing. His country typically classifies his writings and the subject matter centers on ultracentrifuge technology.

Today, “The Man Of The Nation” is showered with rose petals.²⁰ A cricket team, the Dr. Abdul Qadeer Khan Eleven is named after him. Pakistan is currently issuing stamps commemorating the nuclear tests, each featuring his official portrait. Not only is he in charge of the atomic bomb program, but he is also now in charge of developing the Ghauri missile that will carry the bombs.

Dr. Khan has been compared to the madman Dr. Strangelove to which he replies: “It does not bother me what the Western press says about me. They dislike our god, they dislike our prophet, they dislike our national leaders, and no wonder they dislike anybody who tries to put this country on an independent and self-reliant path.”²¹

General Anatoly Kuntsevich

Russia continues to be an important source of weapons of mass destruction materials to Iran, India and Pakistan.²² Russia is supplying a variety of ballistic missile related goods to foreign countries as well. One of the reasons for Russia’s success, at least in the chemical arena, is due to the efforts of General Anatoly Kuntsevich.

General Kuntsevich was born at Mogilev Oblast's settlement of Svisloch in 1934. In 1941 (as a boy in Orsha) General Kuntsevich witnessed a panic when it was announced that the Germans were using gas weapons against his people. This incident led him to go to the military academy of chemical defense and on to a career in chemical weaponry.

He joined the armed forces in 1952 and spent 25 years at the Shikhany Military-Chemical Center.²³ He spent 10 of those years as the head of the Center. General Kuntsevich was discharged into the reserves in 1991 as a three-star general. He is married and has two children.



Figure 2. General Anatoly Kuntsevich (Taken from Russian Television)

Why is General Anatoly Kuntsevich a concern for Western governments? Israeli intelligence analysts have expressed their concern and amazement at the rapidity and ease with which the Syrians have been able to obtain the know-how to produce VX nerve gas. Secretly assisted by Russian chemical experts, the Syrian military research and development and industrial complex known as the Scientific Studies and Research Center had no trouble getting the required expertise, technology and materials from Russian sources. Despite its apparently innocent scientific front, the Scientific Studies and

Research Center is responsible for non-conventional weapons development and production.²⁴

General Kuntsevich was reported to have assisted Syria. He is not considered (by Western intelligence agencies) to be just another underpaid Russian officer or scientist looking for an additional source of income.²⁵ General Kuntsevich was dismissed from his position for suspicion of smuggling nerve gas precursors to Syria in early 1995. General Kuntsevich had been Russian President Yeltsin's personal adviser on chemical disarmament and was considered Russia's highest official authority on the subject.

That ought to be cause for grave concern to the US as well as Israel, especially in light of the recent ratification of the Chemical Weapons Convention by the US and its expected ratification by Israel. Unlike Syria, Egypt, Libya and Iraq, Israel has signed the controversial convention. In April 1991 General Kuntsevich and a few of his colleagues were awarded the Lenin Prize by then-Soviet leader Mikhail Gorbachev for their achievements in the secret development of a new binary chemical warfare agent intended to circumvent the Chemical Weapons Convention's limitations. General Kuntsevich admitted in an interview in 1998 with the New York Jewish weekly *The Forward* that shipments to Syria of small amounts of nerve gas components had indeed taken place. According to him, however, these shipments were only intended for "research purposes" and had been authorized by the Russian government under previously undisclosed terms of a treaty with Syria.²⁶

The materials shipped to Syria were intended for the production of the Soviet/Russian version of the VX nerve agent - code-named Substance 33 or V-gas. In interviews with *The Wall Street Journal* and various other papers in recent years, Russian

scientist Vil Mirzayanov cautioned the US against believing that Kuntsevich's successors would be any better.²⁷ Mr. Mirzayanov immigrated to the US after getting into trouble in Russia for divulging state secrets regarding the development and production of new chemical weapons. According to Mirzayanov, Russia's chemical generals are all eager to fraudulently use US money intended for chemical disarmament to help modernize their chemical-weapons arsenal. They are also no less eager to raise hard currency through covert or black-market export deals with rogue states and possibly even terrorist groups.²⁸

American arms control officials and analysts would be well advised to investigate the possibility that, as Kuntsevich claims, the shipment of nerve gas precursors to Syria was part of a secret deal. Such a deal might have been made in the early '90s or late '80s during a visit to Syria by the then-commander of the Russian Chemical Corps, General Pikalov.²⁹

General Kuntsevich's activities are a major concern for the US, as Russia has the world's largest chemical warfare program.³⁰ The Russian stockpile includes over 40,000 tons of chemical agent, most of which has already been added to such weapons as artillery, rockets, bombs, and missiles. Rampant corruption and decentralized control have also increased the potential for illegal arms exports since Soviet military trade was consolidated under the Foreign Economic Relations Ministry.³¹ In addition, many Russian scientists and engineers are known to be working in/for several non-former Soviet Union (FSU) countries. These individuals (only one of which is General Kuntsevich) were directly involved in defensive missile system research and development programs in the FSU and, more recently, in the successor states.

Recent reports have suggested that Russia produced more chemical weapons than publicly declared, and that a binary program was initiated to circumvent the verification provisions of a chemical warfare agreement.³² Each of these adds to the danger that Russia will become a source of chemical weapons and chemical weapons know-how.

The West should fear the worst from Russia's repeated stalling on agreements to destroy its chemical and biological stockpiles. Admittedly it's harder and more costly to neutralize a nerve gas than it is to mass-produce it, and as stated before, Russia has at least 40,000 tons of the deadly gas.³³ But the delay in building a pilot conversion plant may have a deeper cause than the ostensible reason—a dispute over the appropriate technology. The U.S. should face the possibility that Russia has simply lost interest in the conversion program.

By turning a blind eye to the Russian stalling, the Clinton administration increases the chance that these weapons may someday be turned on civilian targets. Russia wouldn't do so herself—not even Nazi Germany did that—but this arsenal could easily feed a new world black market of terror weaponry available to crackpot groups and rogue states willing to use them. Smuggling the chemicals, as General Kuntsevich was alleged to do, is a constant temptation for the “chemical generals,” who have even shadier reputations and greater financial need.³⁴

In 1986, General Kuntsevich wrote a book called *Binary Weapons Must Be Banned*.³⁵ This book is littered with Russian propaganda regarding the United State's potential use of weapons of mass destruction all-the-while describing Russia's program as defensive, or even peaceful. The book details many U.S. chemical defensive programs as offensive weapons against which Russia feels the need to have a viable defense.

Dr. Rihab Taha

Iraq continues to be one of the most active countries seeking to acquire all types of weapons of mass destruction technology and advanced conventional weapons. Iraqi efforts in the last half of 1996 focused on acquiring production technology that will give Iraq an indigenous production capability for all types of WMD. Numerous interdiction efforts by the US government have interfered with Iraqi attempts to purchase arms and WMD-related goods, but Iraq's acquisition efforts remain strong.³⁶

The mastermind behind Iraq's bio-weapons program is thought to be Dr. Rihab Rashida Taha. She has been dubbed "Dr. Germ" by the Western media. It is of some embarrassment to the UK Government that she obtained her Ph.D. in plant toxins at the University of East Anglia between 1981-84.³⁷ Dr. Taha's official title is the Production Chief of Iraq's Biological Warfare Program, and she is today considered one of the world's most dangerous women. There is only one name ahead of hers on the U.S.'s list of Middle Eastern enemies—that of her boss, President Saddam Hussein.³⁸ She had earlier been responsible for tests of anthrax and botulium at Iraq's Salman Park facility. These tests were conducted on rats, mice, rhesus monkeys, beagles and donkeys. In unreleased videotapes seized by the U.N. two years ago, the animals that had been exposed to germ agents were shown writhing and dying in agony.³⁹

For years, Dr. Taha has met with U.N. inspectors monitoring the most feared and least understood of Iraq's weapons programs. Under questioning, the normally mild Dr. Taha would explode into a rage, shouting and tossing chairs. Some U.N. inspectors came to see the outbursts as a staged tactic to disrupt questioning.⁴⁰

But whether she leads the program, or is a front for those who do, Dr. Taha poses a problem for world powers that will last well beyond the resolution of the current crisis. Even if Iraq submits to unrestricted U.N. weapons inspections, or U.S.-led air strikes succeed in taking out the program, scientists like Dr. Taha who developed the weapons will still have the knowledge to rebuild the capability. “It is the scientists who are the key to this,” said Andrew Koch, an analyst at the Center for Defense Information in Washington. “As long as Iraq maintains the brainpower to do this...over the long term you can’t stop them.”⁴¹

Although U.N. inspectors still have questions about Iraq’s efforts to build chemical weapons and long-range missiles, it is the biological weapons program that remains the least understood. Inspectors have said it is not clear whether Iraq has tried to grow toxins since they started monitoring in 1991. It is partly by analyzing Dr. Taha’s training and career activities that inspectors have pieced together some of what they know and suspect about Iraq’s “Dr. Germ.”⁴²

Dr. Taha joined the staff at al-Muthanna, a weapons research center about 60 miles north of Baghdad, in 1985 shortly after she received her doctorate from the University of East Anglia. Some U.N. officials have speculated that Baghdad may have recruited Western-educated Iraqi scientists for specific parts of the program, or may have sent students to the West to learn certain skills. Why or how Dr. Taha was selected was not made clear to this researcher. How central her role became is still a question. United Nations inspectors say they are still not sure who runs the program. “She was clearly one of the lead researchers, but she didn’t have the stature to run it,” said Tim Trevan, who served on the U.N. inspection team from 1992-1995.⁴³ “It was assumed that there was

someone higher up who would have recruited her to the program and there must have been some kind of a military structure for the program above her,” Trevan said.⁴⁴

Dr. Taha and her staff (which Iraq says numbered about 10 scientists) were transferred in 1987 to Salman Park outside of Baghdad, which became a key biological weapons center. Experts have estimated that perhaps as many as 100 support staff worked with them.

Dr. Taha married Lt. Gen. Amer Rashid, an engineer and Iraq’s oil minister whose work also includes the weapons program. Gen. Rashid conceived Iraq’s advanced weapons program, first expanding the capacity of Russian-made Scud missiles during the 1980-88 Iraq-Iran war. General Rashid ironically is the official whose job it is to liaise with U.N. inspectors, (who probably warns his wife of possible visits) and says it was his wife’s idea to get Saddam Hussein to launch his germ warfare manufacturing project in the 1980s.⁴⁵ Dr. Taha created the major factory for this purpose at al-Hakam, 120 kilometers from Baghdad.

Officials agree that Dr. Taha headed the efforts to produce anthrax and botulism toxin, two of the biological weapons most widely produced by Iraq. Iraq has admitted having produced 130,000 gallons of botulism toxin and anthrax, but says it destroyed those toxins before the 1991 Gulf War. U.N. inspectors say they fear that Iraq could still have more than 1,000 gallons of the material easily stored and hidden.⁴⁶

Prompted by Dr. Taha, Saddam Hussein had his intelligence community show the first sign of his biological warfare capability since the recent U.S. draw down by ordering anthrax be smuggled into the U.K. By 1990, Iraq had built up a huge stockpile of chemical weapons and was engaged in major biological warfare research efforts. At

Iraq's main chemical weapons complex at al-Muthanna there were two sarin production plants, a mustard gas facility, and several plants to produce precursor chemicals. Iraq had become self-sufficient in chemical warfare production, with plants and equipment that could produce over 1,000 tons of the agent per year.

U.N. inspectors have also found that Iraq could produce biological weapons without foreign assistance. On April 10, 1995, Rolph Ekues, the head of the U.N. special commission on Iraq, reported that Baghdad had failed to account for 17 tons of material that could be used to produce biological weapons, and that Iraq may have a clandestine capability to produce such weapons.⁴⁷ After months of pressure by the U.N., key Iraqi officials admitted in July 1995 that they had produced a large quantity of germ warfare agents.

The Iraqi disclosure was actually made by Dr. Taha. She said scientists working in the chemical warfare plant at al-Muthanna began the Iraqi biological warfare program in late 1985. Research continued at the biological laboratory constructed by German companies at Salman Park, southeast of Baghdad. Very strong strains of anthrax, tularemia, botulium, and several other agents were developed and tested on sheep, donkeys, monkeys, and dogs in the biological laboratory. In 1986, Dr. Taha purchased 27 varieties of anthrax bacteria near Washington, D.C. to start up her personal research.

Iraq admitted to producing and storing some 5,500 gallons of clostridium botulium and anthrax bacteria. Iraq officials claimed they destroyed their entire stock of biological weapons agents in 1990 the Desert Storm fighting to prevent it from contaminating Iraq if the stock area became a bomb target. The facility at al-Hakam was never bombed,

however, and to date officials have not provided proof that Iraq actually destroyed the material.⁴⁸

On the basis of the last seven years' experience, the world's experts conclude that if production component data remain hidden, and enough expertise has been retained or developed, Iraq can easily resume production of their WMD. These experts believe Iraq maintains a small force of Scud type missiles, a small stockpile of chemical and biological munitions, and the capacity to quickly restart biological and chemical weapons production.

Iraq has the expertise to quickly resume a small-scale biological weapons program at facilities that currently produce legitimate chemicals such as vaccines and other pharmaceuticals. Without effective U.N. monitoring, Baghdad could probably begin production within a few days. For example, Iraq can convert production of bio-pesticides to anthrax by changing seed material.

Not much else is known about Dr. Taha, except that she is a source of pride for Saddam Hussein. Recently he decorated her for her work in developing weapons based on anthrax.⁴⁹ If Dr. Taha has published papers or books of any kind, this researcher was not able to find them.

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Chapter 4

Conclusion and Recommendations

Weapons of Mass Destruction pose the greatest potential threat to global stability and security. Proliferation of advanced weapons and technologies threatens to provide rogue states, terrorists and international crime organizations the means to inflict terrible damage on the United States, its allies and U.S. citizens and troops abroad.

—A National Security Strategy for a New Century, 1998

Summary of Findings

During the recent Nonproliferation Treaty (NPT) negotiations, the US campaigned vigorously for the indefinite extension of a treaty to prevent a large number of nations that have no intention of developing nuclear weapons from doing so. While the NPT may have marginally slowed the spread of nuclear weapons, the treaty has not prevented nations that deem nuclear ownership to be in their interest from pursuing that ownership. Some of the signatories—Iran, Iraq, and North Korea, for example—are engaged in intensive efforts to develop the very weapons the treaty purports to prohibit. Others who are not signatories—Pakistan and India, for example—are also pursuing nuclear weapons programs.

The relative failure of cooperative nonproliferation makes counterproliferation more important than ever. DOD's counterproliferation program follows two tracks, prevention and protection. Prevention relies on DOD's technical, military, and intelligence

capabilities to help enforce arms control agreements, track technology exports, monitor ongoing nuclear programs, and intercept shipments of sensitive or illegal materials and technology. Protection includes intelligence, surveillance, ballistic missile defenses, and offensive capabilities needed if a proliferant achieves WMD capabilities. Knowledge about a proliferant's background and work histories will prove invaluable in this regard.

Table 1. Summary of Proliferant Backgrounds

	Dr. Khan	Gen Kuntsevich	Dr. Taha
Born in a country with undeclared WMD capabilities	Yes	No	Yes
Educated by their enemies	Yes	Unknown	Yes
Motivated by financial incentives	Yes	Yes	Unknown
Raised in have not homes	Yes	Unknown	Unknown
Strong patriot	Yes	Yes	Yes

Similarities could be found amongst the three proliferants studied in this research (see Table 1). The most prevalent of the attributes was the strength of each proliferant's patriotic feelings toward their country. General Kuntsevich was the one who appeared to be strongly motivated by financial incentives, although Dr. Khan certainly seemed to appreciate the benefits his country was affording him for his work. The reader has the opportunity to draw conclusions for the tabulated results. However, more data than what is available would be required in order to draw any meaningful conclusions.

Implications of the Study

The potential for the proliferation of nuclear, biological, and chemical (NBC) weapons is widespread. Any state with nuclear reactors has the technological resources needed to produce radiological weapons or to start a nuclear weapons program. For chemical and biological weapons in particular, the potential for proliferation is almost

unlimited. Any state with a basic chemical, petrochemical, pharmaceutical, biotechnological, or related industry can produce basic chemical or biological agents.

Similar points hold for many of the chemical and biological production facilities found throughout the world. This researcher found that while there has been significant NBC proliferation, all of the available proliferation potential has not been translated into publicly announced or deployed NBC weapon systems.

Given a decision by a country's national leaders to develop NBC weapons capabilities, a range of outcomes involving different decisions, actions, and political and economic costs can result. The most common situation today is one in which proliferants stop short of announcing their status as an NBC weapons state (with the exception of Dr. Khan).

Department of Defense proliferation prevention activities are directed at all stages of proliferation. One of the objectives in US proliferation prevention policy is to encourage movement to stages of less capability.¹ This policy involves positive measures that allow leaders of other countries to respond to legitimate national security requirements without engaging in NBC proliferation. It also involves negative measures to impede proliferation. There have been successes in proliferation prevention, including situations in which national leaders have opted to eliminate NBC weapons or to halt work on their development. Obviously the leaders of Iraq, Russia, and Pakistan do not fall into that category.

Although relatively inexpensive to produce, NBC materials are dangerous to process and store, and there are international political costs associated with violations of arms

control conventions. This is true especially if the proliferant does not develop and test its weapons to U.S. standards, as is the case with Dr. Taha.

In the United States, the rationale for nuclear weapons-related programs is stated in detail and publicly debated. This is not the case in most proliferant states, whose leaders have not been willing to articulate, on the record, the factors that have prompted them to incur the costs involved in NBC proliferation (with the exception of Pakistan).²

In some cases, self-defined security requirements appear to be the motivating factor, particularly if regional adversaries are perceived to have NBC weapons. Some of these situations have been successfully addressed through proliferation prevention policies; other cases have not yet been amenable to such solutions.

States may try to acquire or develop NBC weapons or missiles because of a need to deter hostile neighbors that have similar capabilities. Prestige and the ability to intimidate less powerful states also could be factors. This was the case with Pakistan. There also are situations where one of the motivations appears to be the development of NBC military capabilities as a means of offsetting the conventional superiority of the United States or other states with more capable conventional forces. Examples here would be Russia and Iraq. The result can be paradoxical, with proliferation resulting in more risks than would otherwise be the case.

Areas of Further Research

One of the core objectives in proliferation protection policy is to convince potential and actual proliferants that NBC weapons will be of no value to them. The reason for that is because the United States and its coalition partners will have the capability to deny or limit the political or military utility of NBC weapons. Also, the damage inflicted by

U.S. and coalition forces in response will far outweigh any potential benefits of use. A useful study in this area would be to determine why this idea has not worked in the case of Iraq.

Recommendations

The Quadrennial Defense Review concluded that the threat or use of chemical or biological weapons is a “likely condition of future warfare.”³ It noted that U.S. and allied forces would be especially vulnerable to chemical and biological weapons attacks in the early stages of operations when concentrated at airbases, ports and other key logistical nodes. Because of the prevalence of such capabilities in the hands of potential adversaries, and the likelihood that such adversaries would resort to such means in the face of overwhelming U.S. conventional dominance, U.S. forces must plan and prepare to fight and win major theater wars as well as perform smaller scale contingency operations under such conditions.⁴

Accordingly, U.S. forces must be properly trained and equipped to operate effectively and decisively in the face of chemical and biological attacks. This requires the U.S. military to continue improving its capabilities to locate and destroy chemical and biological weapons and their delivery systems. This capability includes destroying hard and/or deeply buried facilities preferably before such weapons can be used. U.S. forces must also be ready to defend against and manage the consequences of chemical and biological weapons if they are used. But capability enhancements alone are not enough.

Equally important will be adapting U.S. doctrine, operational concepts, training, and exercises to take full account of the threat posed by chemical and biological weapons. Moreover, given the United States will most likely conduct future operations in coalition

with others, we must also encourage our friends and allies to train and equip their forces for effective operations in chemical/biological environments. This paper is just a beginning for the knowledgebase required to start such training.

Knowing the background characteristics of past NBC proliferants will enable our security agencies to discover early-on the potential for such an occupation.

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